



Concept of Collection, Empty and Partial Sets

Yuldoshev Mansur Najmiddin ugli

Academic Lyceum of Tashkent State University of Economics lead math science teacher

mansuryuldoshev212901@mail.ru

Annotation

This article provides mathematical set theory and details about empty and partial sets.

ARTICLE INFO

Article history:

Received 28 Dec 2022

Revised form 25 Jan 2023

Accepted 28 Feb 2023

Key words:

mathematical operations, set concept, subsets, examples, etc.

© 2023 Hosting by Central Asian Studies. All rights reserved.

The concept of a set is one of the basic concepts of mathematics, it is not defined and is visualized with the help of examples. For example, a set of students in the auditorium, a set of vowels, a set of natural numbers, a flock of birds, a flock of sheep, etc. k. Objects that make up a set are called set elements. Sets are denoted by uppercase letters of the Latin alphabet: A, B, C, ..., and its elements are denoted by lowercase letters of the Latin alphabet: a, b, c A set element is written in the form and reads "element a belongs to set A". If an element A does not belong to the set, it is written in the form or. Some sets of numbers have their own markings. The set of all natural numbers is denoted by N, the set of all integers by Z, the set of all rational numbers by Q, the set of all real numbers by R. A set without any elements is called an empty set and is defined as a view. For example, the set of real roots of the equation $x^2 + 4 = 0$, the set of trees on the moon, and the set of dry rocks at the bottom of the sea are empty sets. A set consisting of a finite number of elements is called a finite set. For example, the set of letters of the Latin alphabet, the set of colors of the rainbow, the set of numbers are finite sets. If the number of elements of a set is infinite, such a set is called an infinite set. For example, the set of all natural numbers, the set of points in the plane is infinite. Sets consisting of the same elements are called equal sets and are denoted as such.

Collection and its element. Finite and infinite sets: In mathematics, it is often necessary to treat groups of objects as a single whole: numbers from 1 to 10, single-digit numbers, triangles, squares, and so on. Such different sets are called sets. The concept of a set is one of the fundamental concepts of mathematics, and therefore it cannot be defined by other concepts. It can be explained with the help of examples. For example, you can talk about a set of students in a class, about a set of natural numbers. In some cases, sets are designated by letters A, B, C..., Z, of the Latin alphabet. A set that does not contain any objects is called an empty set. Objects that make up a set are called its elements. It can be written as: $A = \{3, 4, 5, 6\}$ where the enumerated elements are written in large brackets. A characteristic property is a property such that every element belonging to a set has that property and none that do not belong to it. It is accepted to mark the elements of the set with lowercase letters of the Latin alphabet a, b, c..., z. We define that elements in a set belong to this set as follows. The element $A = (a, b, c, \dots, z)$ belongs to the set. If an element does not belong to a collection. Then b is used. M: Let $A = \{1, a, b, c, 4\}$ then the following are valid $1A, aA, bA, cA, 4A, 5bA, dbA, kbA$. If the elements of a set can be counted, such a set is called a finite set. If they are uncountable,

such a set is called an infinite set. For example, the set of days in a week is finite, but the set of points on a straight line is infinite. In mathematics, a special notation is adopted for such sets: the letter N denotes the set of natural numbers, Z is the set of integers, Q is the set of rational numbers, R is the set of real numbers. $[0; 1]$ segment continuum is a power pack. Sets equivalent to it are infinite sets. A set of points on an arbitrary small section is an equivalent set to a continuum power set. If we draw straight lines through the center of the circle, several points of the circle are reflected to one point of the straight line. In this reflection, the set of points of a circle is the reflection of the set of points of a straight line, and these sets are continuum-powered sets. That is, it is an infinite set. Given two sets A and B , let's match each element x of set A to element y of set B according to some rule f . Then this rule is called the mapping of set A to set B . It is defined as follows. $f: A \rightarrow B$ or AB A set is defined by its elements, that is, if an arbitrary object can be said to belong to a set or not, then this set is given. A set can be given by enumerating all its elements. For example, if we say that set A consists of the numbers 3, 4, 5, and 6, we have given this set because all its elements have been enumerated.

It is known that today, when science and technology are developing at a rapid pace, the volume of scientific knowledge, ideas and images is increasing dramatically. On the one hand, this ensures its differentiation due to the development of new fields and departments of science and technology, and on the other hand, it creates the process of integration between sciences. The use of innovative methods to increase the effectiveness of the lesson, improving the skills of teachers, depends primarily on their special professional potential. Taking into account the hour of the topic to be passed, they should also solve the problem of increasing their knowledge in different ways. Repetition of the passed topic creates a ground for mastering a new topic in the mind of the teacher together with the student. This ensures the effectiveness of mastering a new subject. In this process, the student has the opportunity to think freely and openly about the problems. With regard to the concept of the collection, educators can achieve good results in a short period of time with regard to the things they need. In the lesson, the teacher should attract students to the relevant problems, activate their character and, as a result, ensure their mastery. In this case, the teacher acts only as a guide, observer, and judge. It is also very important that the teachers are satisfied with the training and the work they are doing.

$$x|x \in N, -2 \leq x \leq 5, \quad x|x \in N, 2 \leq x^2 \leq 30, \\ x|x \in N, x^2 \leq 21, \quad x|x \in N, 3 \leq x^2 \leq 35$$

Methods of delivery of packages. A set is said to be given if it is single-valued that each element belongs or does not belong to a certain set. Collections are usually given in two ways: 1. The collection elements are listed. For example, $A = \{a; o; i; she; is; die; e\}$; $B = \{\text{red, yellow, green}\}$; $C = \{1; 2; 3; 4; 5; 6; 7; 8; 9\}$. 2. The only characteristic property of the elements included in the collection is shown. For example, if we give the above sets with a characteristic property: A is a set of vowel letters of the Uzbek alphabet; B —set of traffic light colors; C is the set of one-digit natural numbers. For numerical sets, it is convenient to give the characteristic property by a formula. In this case, usually, the symbol of the set element, a vertical line, and then the property corresponding to the set element are written in large brackets. If all elements of set A also belong to set B , then set A is called a subset of set B and is written in the form $A \subset B$. By definition, any set is its own subset; and an empty set is a subset of any set. Subsets are divided into two types: specific and non-specific subsets. The set itself and the empty set are called non-property sets.

References:

1. Rakhimov, S. M., Djamirzaev, A. A., Akhmedov, B. A. (2021). Methods of teaching Informatics in Higher Education Problems and Observations. Economy and society, 9(88).

2. Akhmedov, BA (2021). Problems of ensuring the reliability of cluster systems in a continuous educational environment. Eurasian Education Science and Innovation Journal, 1 (22), 15-19. 10. Rakhimov, S. M., Akhmedov, B. A. (2021). In secondary school
3. Akhmedov BA, Shaikhislamov N., Madalimov T., Makhmudov Q. (2021). methodology of teaching informatics. Economy and society, 9(88).
4. Akhmedov, B. A., Sultanov, B. (2021). Analysis of new trends in the use of the cluster system and artificial intelligence in the modern system of higher education. Economics and society, 8(87), 344-358.

